



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

AT-18J

MEMORANDUM

DATE: December 6, 2016

SUBJECT: Barnesville OH Dataset

FROM: Bilal Qazzaz
ARD Quality Assurance Coordinator
Air Monitoring and Analysis Section

THROUGH: Michael Compher
Section Chief
Air Monitoring and Analysis Section

TO: Loretta Lehrman
ARD Quality Assurance Manager
Air Monitoring and Analysis Section

12/6/16

MC 12/6/16

On July 25-26, 2016, USEPA collected air monitoring data for hydrogen sulfide, methane, sulfur dioxide, benzene, toluene, ethylbenzene, and o-m-p xylene in Barnesville, OH. The Barnesville OH dataset has been officially submitted for my review and validation. I have reviewed the dataset and the attached pre- and post-campaign quality control results according to the GMAP Quality Assurance Project Plan signed on May 13, 2016. As a result of the GMAP system passing the pre- and post-campaign quality control checks for hydrogen sulfide, methane, sulfur dioxide, benzene, ethylbenzene, and m-p xylene, I recommend validating the dataset based on the quality control criteria being met. Toluene failed the pre- and post-QC checks and o-xylene failed the pre-QC check and as a result I recommend invalidating these data due to the QC check failures.

If you have any questions about my recommendation, please feel free to contact me at qazzaz.bilal@epa.gov.



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CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF: AT-18J

MEMORANDUM

SUBJECT: Barnesville, OH Geospatial Monitoring of Air Pollution Data,
July 25-26, 2016

FROM: Marta Fuoco *MF 12/6/16*
Physical Scientist
Air Monitoring and Analysis Section

TO: Bilal Qazzaz *BQ 12/6/16*
Physical Scientist
Air Monitoring and Analysis Section

On July 25-26, 2016 USEPA collected air monitoring data for hydrogen sulfide, methane, sulfur dioxide, benzene, toluene, ethylbenzene, o-m-p xylene in Barnesville, OH. This memorandum officially submits seven sets for your review and validation. I have also included the necessary supporting documentation in the attachments; the toluene and o-xylene failed the pre QC checks; toluene failed the post QC checks. The AM flag (Miscellaneous Void) was used to denote outliers in H2S concentrations. The data sets are available on the G shared drive and have been appropriately protected against inadvertent manipulation. The flag descriptions can be found in Attachment 2. Please see Attachment 1 for the Activity Log files; the entire set of quality control and calibration files will be submitted electronically. The file names and dates of data collection are as follows:

File Name: Barnesville Start QC CHECK	Date: 07/25/16
File Name: DriveToHumphreysfrom70	Date: 07/26/16
File Name: HumphreysAfternoon	Date: 07/26/16
File Name: HumphreysAfternoonONSITE	Date: 07/26/16
File Name: HumphreysAfternoonSTATIONARY	Date: 07/26/16
File Name: HumphreysNORTH	Date: 07/26/16
File Name: Barnesville End QC CHECK	Date: 07/26/16

Attached to this memorandum are the following:
Attachment 1: Quality Control and Calibration Data
Attachment 2: Explanation of Data Flags
Attachment 3: MDL Table

Please review all data sets according to the attached Quality Assurance Project Plan signed on **May 13, 2016**. If you have questions about this information please contact me. I appreciate your involvement in the data validation process.

Attachment 1

Quality Control and Calibration Data:

G2204 CALIBRATION - COMPLETE THIS LOG EACH TIME A CALIBRATION IS COMPLETED

CALIBRATION DATE	5-23-16	5-23-16	5-23-16	10-25-16	10/25/16	10/25/16
INITIALS	SAB	SAB	SAB	SAB	SAB	SAB
START TIME	16:14	16:19	16:25	15:31	15:31	16:20
END TIME	16:18	16:22	16:28	16:11	16:11	16:24
PARAMETER	Z	H ₂ S	CH ₄	H ₂ S Z	CH ₄ Z	H ₂ S
CYLINDER SERIAL NUMBER	N/A	FF43010	BR000 8115	N/A	N/A	FF43010
CYLINDER CERTIFICATION DATE	N/A	9/17/14	12/13/14	N/A	N/A	9/17/14
CYLINDER PSI (MUST BE > 100 PSI)	N/A	1050	2050	N/A	N/A	700
CERTIFIED CYLINDER CONCENTRATION (PPM)	N/A	49.78	10.16	N/A	N/A	49.78
EXCESS ROTOMETER READING (1.1 MIDDLE OF THE BALL)	N/A	1.1	1.1	1.1	1.1	1.1
PICARRO RESPONSE (PPM)	H ₂ S .0094 CH ₄ 2.106	52.305	10.144	0.0001	0.001	52.107
PERCENT DIFFERENCE (MUST BE WITHIN 10%)	N/A	5.1%	-0.2%	N/A	N/A	4.7%
INITIAL SLOPE	1.000	1.000	1.000	1.000	1.000	1.000
FINAL SLOPE	1.000	1.000	1.000	1.000	1.000	1.000
INITIAL ZERO	0	0	0	0	0	0 1.000 10/25/16
FINAL ZERO	0	0	0	0	0	0

COMPLETE THIS LOG EACH TIME A ZERO IS RUN - PICARRO G2204

ZERO DATE	05.26.16	6/8/16	6/9/16	6/13/16	6/16/16	
INITIALS	WLF	SA	SA	SA	SA	
START TIME	12:40	20:43	10:50	0807	0735	
END TIME	12:49	20:48	10:56	0814	0743	
PICARRO READING (PPM) (MUST BE WITHIN 2% OF THE HIGHEST CALIBRATION POINT)	H2S	0.008 ppm	-0.0001	-0.0042	-0.004	-0.003
	CH4	2.20 ppm	0.477	0.411	0.011	0.044
ZERO DATE	7/13/16	7/19/16	7/20/16	7/25/16	7/26/16	
INITIALS	SA	SA	WAC	SA	nmt	
START TIME	1048	1016	905	2002	1741	
END TIME	1058	1037	915	2016	1745	
PICARRO READING (PPM) (MUST BE WITHIN 2% OF THE HIGHEST CALIBRATION POINT)	H2S	-0.008	0.0084	-8	0.003	0.002
	CH4	0.0017	0.0011	0.001 0.1	0.000	0.049

COMPLETE THIS LOG EACH TIME A ZERO IS RUN - DV3000

ZERO DATE		6/16/16	7/13/16	7/19/16	7/25/16	7/26/16
INITIALS		SA	SA	SA	SA	NMT
START TIME		0750 0850 6/16/16	1043	1005	1952	1735
END TIME		0800 0900 6/16/16	1048	1016	2001	1740
DV3000 READING (PPM)	Benzene	0	-2.3	1.8	0	0
	Toluene	-16	-4.3	-9.8	-3	-2
	Ethylbenzene	13	4.9	12.3	5	0
	m-Xylene	9	5.1	6.4	2	0
	o-Xylene	13	9.1	13.4	7	2
	p-Xylene	-1	-1.6	-0.7	0	1
	SO2	0	0.67	0.8	0	0
	Formaldehyde	-4	-9.8	-4.5	1	-10
	Styrene	-2	0.9	0.09	0	0

G2204 QC CHECK LOG WITH CYLINDER SN

FF14449

QC CHECK DATE	7/13/16	7/19/16	7/25/16	7/26/16	10/27/16
INITIALS	SA	SA	SA	WMT	SA
START TIME	11:09	10:50	2024	1745 1750 ^{WMT}	14:28
END TIME	11:14	10:53	2030	1759	14:37
CYLINDER CERTIFICATION DATE	5/26/16	5/26/16	5/26/16	5/26/16	5/26/16
CYLINDER PSI (MUST BE > 100 PSI)	2200	2200	2150	2100	2000
CERTIFIED CYLINDER CONCENTRATION (PPM)	199.6	199.6	199.6	199.6	199.6
EXCESS ROTOMETER READING (1.1 MIDDLE OF THE BALL)	1.5	1.5	1.5	1.5	1.1
G2204 RESPONSE (PPM)	216.9	201.4	207.9	206.3	203.1
PERCENT DIFFERENCE (MUST WITHIN 15%)	8.7%	0.9%	4.2%	3.4%	1.8%

G2204 QC CHECK LOG WITH CYLINDER SN

FF43010

QC CHECK DATE	7/13/16	7/19/16	7/20/16	7/25/16	7/26/16
INITIALS	SA	SA	MSC	SA	ZMT
START TIME	11:00	10:39	8:12	2008 2018 7/25/16	1745
END TIME	11:09	10:48	8:21	2024	1750
CYLINDER CERTIFICATION DATE	9/17/14	9/17/14	9/17/14	9/17/14	9/17/14
CYLINDER PSI (MUST BE > 100 PSI)	900	900	800	800	800
CERTIFIED CYLINDER CONCENTRATION (PPM)	49.78	49.78	49.78	49.78	49.78
EXCESS ROTOMETER READING (1.1 MIDDLE OF THE BALL)	1.5	1.5	1.5	1.5	1.5
G2204 RESPONSE (PPM)	52.220	37.221	52.072	51.185	52.343
PERCENT DIFFERENCE (MUST WITHIN 15%)	4.9%	-25.2	4.6	2.8	5.1

DV3000 QC CHECK LOG WITH CYLINDER SN FF 36552

QC CHECK DATE	7/25/16		
INITIALS	GAA		
START TIME	2011		
END TIME	2019		
CYLINDER CERTIFICATION DATE	3/3/16		
CYLINDER PSI (MUST BE > 100 PSI)	1750 → 1690		
FLOW READING	4.0		
POLLUTANT	CERTIFIED CYLINDER CONCENTRATION (PPM)	DV3000 RESPONSES (PPM)	PERCENT DIFFERENCE (MUST WITHIN 30%)
Benzene	N/A	N/A	N/A
Toluene	↓	↓	↓
Ethylbenzene	↓	↓	↓
m-Xylene	↓	↓	↓
o-Xylene	↓	↓	↓
p-Xylene	↓	↓	↓
SO2	504	380	-24.6
Formaldehyde	N/A	N/A	N/A
Styrene	↓	↓	↓

DV3000 QC CHECK LOG WITH CYLINDER SN D232913

QC CHECK DATE	7/25/16		
INITIALS	GA		
START TIME	2001		
END TIME	2008		
CYLINDER CERTIFICATION DATE	6/3/16		
CYLINDER PSI (MUST BE > 100 PSI)	1360 GA 7/25/16 START = 2000		
FLOW READING	4.0		
POLLUTANT	CERTIFIED CYLINDER CONCENTRATION (PPM)	DV3000 RESPONSES (PPM)	PERCENT DIFFERENCE (MUST WITHIN 30%)
Benzene	108.9	86	-21.0
Toluene	107.2	192	79.1
Ethylbenzene	102.7	90	-12.4
m-Xylene	102.8	79	-23.2
o-Xylene	103.9	65	-37.4
p-Xylene	106.0	102	-3.8
SO2	N/A	N/A	N/A
Formaldehyde	998.5	636	-36.3
Styrene	105.8	72	-31.9

DV3000 QC CHECK LOG WITH CYLINDER SN FF 36552

QC CHECK DATE	7/26/16		
INITIALS	mmT		
START TIME	1750		
END TIME	1755		
CYLINDER CERTIFICATION DATE	3/3/16		
CYLINDER PSI (MUST BE > 100 PSI)	1650 → 1600		
FLOW READING	4.0		
POLLUTANT	CERTIFIED CYLINDER CONCENTRATION (PPM)	DV3000 RESPONSES (PPM)	PERCENT DIFFERENCE (MUST WITHIN 30%)
Benzene	N/A	N/A	N/A
Toluene	↓	↓	↓
Ethylbenzene	↓	↓	↓
m-Xylene	↓	↓	↓
o-Xylene	↓	↓	↓
p-Xylene	↓	↓	↓
SO2	0.504	386	-23.4
Formaldehyde	N/A	N/A	N/A
Styrene	↓	↓	↓

DV3000 QC CHECK LOG WITH CYLINDER SN D232913

QC CHECK DATE	7/26/16		
INITIALS	mmT		
START TIME	1741		
END TIME	1749		
CYLINDER CERTIFICATION DATE	6/3/16		
CYLINDER PSI (MUST BE > 100 PSI)	2000 → 1950		
FLOW READING	4.0		
POLLUTANT	CERTIFIED CYLINDER CONCENTRATION (PPM)	DV3000 RESPONSES (PPM)	PERCENT DIFFERENCE (MUST WITHIN 30%)
Benzene	108.9	96	-11.8
Toluene	107.2	208	94.0
Ethylbenzene	102.7	108	5.2
m-Xylene	102.8	78	-24.1
o-Xylene	103.9	86	-17.2
p-Xylene	106.0	105	-0.9
SO2	N/A	N/A	N/A
Formaldehyde	998.8	644	-35.5
Styrene	105.8	76	-28.2

FREE FORM NOTES FOR SAMPLING EVENT, MAINTENANCE, TROUBLESHOOTING OR OTHER ACTIVITY

FOR SAMPLING EVENTS MINIMUM DOCUMENTATION = (1) ENVIRONMENTAL CONDITIONS, (2) UNUSUAL ODORS OR OTHER PHYSICAL CONDITIONS DURING SAMPLING, (3) REPORT ANY PROBLEMS WITH INSTRUMENTATION, (4) RECORD AND DOCUMENT MAGNETIC DELINATION FOR MET SAMPLING

DATE

7/25/16

INITIALS

SRA

ACTIVITY

Barnesville, OH oil & gas compressor

FREE FORM NOTES

Diode Response = 13:08

Attachment 2

Explanation of Data Flags

GMAP AQS Null Data Codes:

Qualifier Code	Qualifier Desc	Qualifier Type Desc	Qualifier Type	EPA R5 Comments:
AM	Miscellaneous Void	Null Data Qualifier	NULL	
AN	Machine Malfunction	Null Data Qualifier	NULL	Communication error; instrument not collecting, data set to null [NA]
AT	Calibration	Null Data Qualifier	NULL	
AZ	QC Audit	Null Data Qualifier	NULL	
BA	Maintenance/Routine Repairs	Null Data Qualifier	NULL	
BN	Sample Value Exceeds Media Limit	Null Data Qualifier	NULL	Values exceed range of unit in one or more channels and are invalid; both channels invalidated
EH	Estimated; Exceeds upper range	Quality Assurance Qualifier	QA	Value above highest calibrated concentration
MD	Value less than MDL	Null Data Qualifier	NULL	less than MDL; invalid
ND	No value detected	Quality Assurance Qualifier	QA	zero drift; [MDL x -1]
QX	Does not meet QC criteria	Null Data Qualifier	NULL	

Attachment 3

MDL Table

	MDL
H2S (ppb)	10.75
CH4 (ppm)	3.41
SO2 (ppb)	0.97
BEN (ppb)	3.39
TOL (ppb)	13.07
ETB (ppb)	10.32
XYM (ppb)	10.22
XYO (ppb)	14.68
XYP (ppb)	2.71